CST1204: Introduction to Databases

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Week 5 Session 1

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Homework Review

- Create shorthand representation and CREATE, INSERT, SELECT statement for each table in Solmaris Condominium Group
- Chapter 2 exercise questions for Solmaris Condominium Group
- Chapter 3 exercise questions for Solmaris Condominium Group

Agenda

- SQL Statement Review
- WHERE Clause
- Updating Data
  - UPDATE
  - DELETE
  - INSERT
- Changing the structure of an existing table: ALTER

Review of SQL Statements

- 6 + 1 most important statements of SQL
  - CREATE, DROP, ALTER
  - INSERT
  - SELECT
  - UPDATE
  - DELETE
- SELECT/UPDATE/DELETE: processing specific row(s) instead of the entire table

Boolean Logic Review

- TRUE or FALSE
  - “I am a student”
  - “CUNY is in Boston”.
- Comparison
  - 100 > 50
  - ‘city’ > ‘TECH’(ASCII)

Boolean Logic Review

- AND/OR/NOT
  - 100 > 50 AND 100 > 200
  - 100 > 50 OR 100 > 200
  - NOT 100 > 200

WHERE Clause

- WHERE clause: DBMS goes through each row and apply SQL action to the rows that the boolean expression is TRUE (Ch4 Pg 100)

```
SELECT * FROM <table_name>
WHERE <boolean expression>
```

  - Also have AND/OR/NOT
- SQL Demo

SELECT Statement: All Columns

- Use asterisk (*) to retrieve all columns

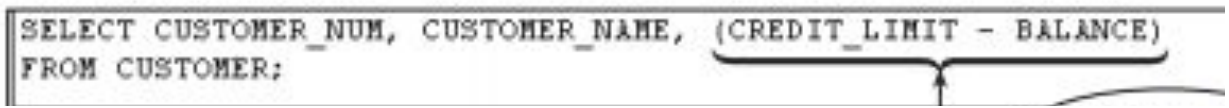
```
SELECT *
FROM <table_name>
WHERE <boolean_expression>
```

- Omit WHERE clause to retrieve all rows

SELECT Statement: Column List

- Retrieving certain columns or column computations (Ch4 Pg 98, Pg107)

```
SELECT <column_list>, <column_computations>
FROM <table_name>
WHERE <boolean_expression>
```



SELECT Statement: Column Alias

- You can rename a column or specifying the name for an expression using AS:

```
SELECT <column_computation> AS <column_alias>
FROM <table_name>
WHERE <boolean_expression>
```

DELETE

- DELETE all rows: Comparing to DROP
- DELETE with WHERE (Ch 3 Pg 77, Ch 6 Pg 175)

```
DELETE FROM <table_name>
WHERE <boolean_expression>
```

INSERT INTO

- Single INSERT covered in previous lectures (Ch 3 Pg 73, Ch 6 Pg 171)

```
INSERT INTO <table_name> VALUES (<value_list>)
```

- Single INSERT with column name list

```
INSERT INTO <table_name> (<column_list>)
VALUES (<value_list>)
```

INSERT INTO

- Bulk Insert (Ch 6 Pg 167)

```
INSERT INTO <target_table_name>
SELECT * FROM <source_table_name>
WHERE <boolean_expression>
```

- Combine bulk insert with single insert

UPDATE

- UPDATE for all rows

```
UPDATE <table_name> SET <column_name> = <value>
```

- With WHERE clause (Ch 3 Pg 76, Ch 6 Pg 169)

```
UPDATE <table_name> SET <column_name> = <value>
WHERE <boolean_expression>
```

UPDATE

- UPDATE with computation (Ch 6 Pg 171): Value can be calculated from other fields, and can be NULL (Ch 6 Pg 177)

```
SET CREDIT_LIMIT = CREDIT_LIMIT * 1.10
```

```
UPDATE LEVEL1_CUSTOMER
SET BALANCE = NULL
WHERE CUSTOMER_NUM = '725';
```

ALTER TABLE

- ALTER TABLE ADD <column> (Ch 6 Pg 179)
- ALTER TABLE MODIFY <column> <data type> (Ch 6 Pg 183)
- ALTER TABLE MODIFY <column> NOT NULL(Ch 6 Pg 184)

ALTER TABLE

- ALTER TABLE ADD <column> (Ch 6 Pg 179)

```
ALTER TABLE LEVEL1_CUSTOMER
ADD CUSTOMER_TYPE CHAR(1);
```

- ALTER TABLE MODIFY <column> <data type> (Ch 6 Pg 183)
- ALTER TABLE MODIFY <column> NOT NULL(Ch 6 Pg 184)

```
ALTER TABLE LEVEL1_CUSTOMER
MODIFY CUSTOMER_NAME CHAR(50);
```

```
ALTER TABLE LEVEL1_CUSTOMER
MODIFY CREDIT_LIMIT NOT NULL;
```

Oct/Nov Plan

- TEST ONE on 9/25.
- Single session for next 3 weeks (10/2, 10/7, 10/16)
  - Will have a different style of homework: 100% hands-on
    - Format of homework
  - Oracle Live SQL:
    - Comments.
    - Execute selected statements
- TEST TWO on 10/21. Will test simple SQL statements

Hands-on

- Create a rep_new table based on rep table
- Add one new row to the rep_new table
- Update the rep name column in the new row to “John Smith”
- Update the new row’s last name to NULL
- Add a mid_initial column of char(1)
- Change rep last name to varchar(200)
- Change mid_initial column to NOT NULL and see result
- Delete data from this new rep

Wednesday (9/25): TEST ONE

- Will give a scenario and ask you to
  - Normalize a bad design into 3NF
  - Identify entities and relationships and their primary key
  - Draw ERD
  - Write CREATE and DROP statements

Homework

- Review previous homework answers posted on Blackboard